



State of Utah

GARY R. HERBERT
Governor

GREG BELL
Lieutenant Governor

Department of
Environmental Quality

Amanda Smith
Executive Director

DIVISION OF AIR QUALITY
Cheryl Heying
Director

JAF
OCT 21 2010

DAQE-AN0103270022-10

October 14, 2010

Jon Finlinson
Intermountain Power Service Corporation
850 West Brush Wellman Rd
Delta, Ut. 84624-9522

Dear Mr. Finlinson:

Re: Approval Order: Minor Modification to Replace Cooling Towers at the Intermountain Converter Station
Project Number: N010327-0022

The attached document is the Approval Order for the above-referenced project. Future correspondence on this Approval Order should include the engineer's name as well as the DAQE number as shown on the upper right-hand corner of this letter. The project engineer for this action is John Jenks, who may be reached at (801) 536-4459.

Sincerely,


M. Cheryl Heying, Executive Secretary
Utah Air Quality Board

MCH:JJ:dn

cc: Mike Owens
Central Utah Health Department

STATE OF UTAH

Department of Environmental Quality

Division of Air Quality

**APPROVAL ORDER: Minor Modification to Replace
Cooling Towers at the Intermountain Converter Station**

**Prepared By: John Jenks, Engineer
Phone: (801) 536-4459
Email: jjenks@utah.gov**

APPROVAL ORDER NUMBER

DAQE-AN0103270022-10

Date: October 14, 2010

**Intermountain Power Service Corporation
Intermountain Generation Station
Source Contact:
Mr. Jon Christensen Technical Director
Phone: (801) 864-4414**

**M. Cheryl Heying
Executive Secretary
Utah Air Quality Board**

Abstract

Intermountain Power Service Corporation (IPSC) operates the Intermountain Generating Station (IGS) coal fired steam-electric plant, consisting of two 950 MW units located near Delta in Millard County. Co-located at the plant site is the Intermountain Converter Station (ICS) that serves as a combination switchyard and AC to DC converter supplying power along the Southern Transmission System. IPSC is replacing six (6) existing cooling towers with eight (8) new cooling towers. The new towers have better heat rejection efficiencies with lower flow capacities, requiring less total flow. Emissions from the new cooling towers are not expected to increase as a result of this equipment replacement. The IGS is operated under a Title V permit (#2700010003) and initially included the ICS cooling towers as a potential emission unit with the original Title V application in 1997. The ICS cooling towers were excluded from the Title V permit as a minor activity. In the interest of clarity, IPSC has elected to reinclude the new cooling towers in their approved equipment list. No other changes are included as a part of this modification.

This air quality AO authorizes the project with the following conditions and failure to comply with any of the conditions may constitute a violation of this order. This AO is issued to, and applies to the following:

Name of Permittee:

Intermountain Power Service Corporation
850 West Brush Wellman Rd
Delta, UT 846249522

Permitted Location:

Intermountain Generation Station
850 West Brush Wellman Road
Delta, UT 84624-9546

UTM coordinates: 364,200 m Easting, 4,374,400 m Northing, UTM Zone 12
SIC code: 4911 (Electric Services)

Section I: GENERAL PROVISIONS

- I.1 The limits set forth in this AO shall not be exceeded without prior approval. [R307-401]
- I.2 Modifications to the equipment or processes approved by this AO that could affect the emissions covered by this AO must be reviewed and approved. [R307-401-1]
- I.3 All records referenced in this AO or in other applicable rules, which are required to be kept by the owner/operator, shall be made available to the Executive Secretary or Executive Secretary's representative upon request, and the records shall include the two-year period prior to the date of the request. Unless otherwise specified in this AO or in other applicable state and federal rules, records shall be kept for a minimum of five (5) years. [R307-401]. [R307-415-6b]
- I.4 At all times, including periods of startup, shutdown, and malfunction, owners and operators shall, to the extent practicable, maintain and operate any equipment approved under this AO, including associated air pollution control equipment, in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Executive Secretary which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source. All maintenance performed on equipment authorized by this AO shall be recorded. [R307-401-4]

- I.5 The owner/operator shall comply with R307-150 Series. Inventories, Testing and Monitoring. [R307-150]
- I.6 The owner/operator shall comply with UAC R307-107. General Requirements: Unavoidable Breakdowns. [R307-107]
- I.7 All definitions, terms, abbreviations, and references used in this AO conform to those used in the UAC R307 and 40 CFR. Unless noted otherwise, references cited in these AO conditions refer to those rules. [R307-101]

Section II: SPECIAL PROVISIONS

II.A The approved installations shall consist of the following equipment:

- II.A.1 **Electric Plant**
Source Wide
- II.A.2 **Unit #1 Coal Fired Boiler**
Equipped with low NO_x burners with a maximum heat input of 248 MMBtu/hr per burner.
Rating - 9,225 MMBtu/hr
- II.A.3 **Unit #2 Coal Fired Boiler**
Equipped with low NO_x burners with a maximum heat input of 248 MMBtu/hr per burner.
Rating - 9,225 MMBtu/hr
- II.A.4 **#1A Boiler**
Auxiliary boiler rated at 166 MMBtu/hr
- II.A.5 **#1B Boiler**
Auxiliary boiler rated at 166 MMBtu/hr
- II.A.6 **Over-Fire Air-Port System**
Boiler #1 & #2 over-fire air-ports system, 16 per boiler
- II.A.7 **#1A Cooling Tower**
Unit 1 cooling tower
- II.A.8 **#1B Cooling Tower**
Unit 1 cooling tower
- II.A.9 **#1A Cooling Tower**
Unit 2 cooling tower
- II.A.10 **#1B Cooling Tower**
Unit 2 cooling tower
- II.A.11 **Two Helper Cooling Towers**

- II.A.12 **#1A Generator**
Emergency generator, rated at 4,000 hp
- II.A.13 **#1B Generator**
Emergency generator, rated at 4,000 hp
- II.A.14 **#1C Generator**
Emergency generator, rated at 4,000 hp
- II.A.15 **#1B Fire Pump**
Diesel driven fire pump rated at 290 hp
- II.A.16 **#1C Fire Pump**
Diesel driven fire pump rated at 290 hp
- II.A.17 **Engine Driven Equipment**
Compressors, generators, hydraulic pumps and diesel fire pumps
- II.A.18 **#1A Dust Collector**
Coal railcar unloading dust collector
- II.A.19 **#1B Dust Collector**
Coal railcar unloading dust collector
- II.A.20 **#1C Dust Collector**
Coal railcar unloading dust collector
- II.A.21 **#1D Dust Collector**
Coal railcar unloading dust collector
- II.A.22 **#2 Coal Dust Collector**
Coal truck unloading dust collector
- II.A.23 **#3 Coal Dust Collector**
Coal reserve reclaim dust collector
- II.A.24 **#4 Coal Dust Collector**
Coal transfer building #1 dust collector
- II.A.25 **#5 Coal Dust Collector**
Coal transfer building #2 dust collector
- II.A.26 **#6 Coal Dust Collector**
Coal transfer building #4 dust collector
- II.A.27 **#11 Coal Dust Collector**
Coal crusher building dust collector
- II.A.28 **#13A Coal Dust Collector**
U1 Generation building coal dust collector

II.A.29	#13B Coal Dust Collector U1 Generation building coal dust collector
II.A.30	#14A Coal Dust Collector U2 Generation building coal dust collector
II.A.31	#14B Coal Dust Collector U2 Generation building coal dust collector
II.A.32	#1A Limestone Dust Collector Limestone unloading dust collector
II.A.33	#1B Limestone Dust Collector Limestone unloading dust collector
II.A.34	#1 Limestone Dust Collector Limestone transfer dust collector
II.A.35	#2 Limestone Dust Collector Limestone reclaim dust collector
II.A.36	#3 Limestone Dust Collector Limestone crusher dust collector
II.A.37	#4 Limestone Dust Collector Limestone preparation dust collector
II.A.38	#1 Lime Dust Collector Lime silo dust collector
II.A.39	#2 Lime Dust Collector Lime hopper dust collector
II.A.40	#3 Soda Ash Dust Collector Soda ash silo dust collector
II.A.41	#4 Soda Ash dust Collector Soda ash hopper dust collector
II.A.42	Coal sample preparation building dust collector
II.A.43	Sandblast facility dust collector
II.A.44	Dust Collector U1 Generation building vacuum cleaning dust collector
II.A.45	Dust Collector U2 Generation building vacuum cleaning dust collector
II.A.46	Dust Collector U1 Fabric filter vacuum cleaning dust collector

- II.A.47 **Dust Collector**
U2 Fabric filter vacuum cleaning dust collector
- II.A.48 **Dust Collector**
GSB vacuum cleaning dust collector
- II.A.49 **Limestone silo bin vent filter**
- II.A.50 **#1A Filter**
Fly ash silo bin vent filter
- II.A.51 **#1B Filter**
Fly ash silo bin vent filter
- II.A.52 **Laboratory fume hoods**
- II.A.53 **#1A Tank**
Fuel oil tank - 675,000 gallons
- II.A.54 **#1B Tank**
Fuel oil tank - 675,000 gallons
- II.A.55 **Gasoline Tank**
500 gallons
- II.A.56 **Diesel Tank**
10,000 gallons
- II.A.57 **Diesel Day Tanks**
Not to exceed 560 gallons per tank
- II.A.58 **Mobile Oil Storage Tanks**
Not to exceed 12,000 gallons per tank
- II.A.59 **Turbine Lube Oil Units**
Not to exceed 40,000 gallons per tank
- II.A.60 **Diesel Tank**
Underground storage diesel tank - 20,000 gallons
- II.A.61 **Gasoline Tank**
Underground storage gasoline tank - 6,000 gallons
- II.A.62 **Used Oil Tank**
10,000 gallons
- II.A.63 **Coal Pile**
Active and reserve
- II.A.64 **Landfill**
Class III Industrial Waste Landfill

- II.A.65 **Coal Stackout**
- II.A.66 **Limestone storage pile**
- II.A.67 **Combustion byproducts stackout & stockpile**
- II.A.68 **Combustion byproducts landfill**
- II.A.69 **Solvent Washer**
- II.A.70 **Coal Conveyors**
- II.A.71 **Paint booth/shops**
- II.A.72 **Bulb recycling crusher**
- II.A.73 **Paved Haul Roads**
- II.A.74 **Unpaved Haul Roads**
- II.A.75 **Coal Truck Unloading Grating**
- II.A.76 **ICS Cooling Towers**
8 cooling towers used at the Intermountain Converter Station and auxiliary equipment

II.B Requirements and Limitations

II.B.1 Intermountain Generating Station

II.B.1.a Visible emissions from the following emission point sources shall not exceed the following values:

- A. All abrasive blasting - 40% opacity (grandfathered equipment)
- B. All other points - 20% opacity

Opacity observations of emissions from stationary sources shall be conducted according to 40 CFR 60, Appendix A, Method 9.

For sources that are subject to NSPS, except for the units equipped with continuous opacity monitoring system, opacity shall be determined by conducting observations in accordance with 40 CFR 60.11(b) and 40 CFR 60, Appendix A, Method 9. [R307-201-3]

II.B.1.b The following consumption limit shall not be exceeded: 50,000 barrels of fuel oil consumed per calendar year in the auxiliary boilers.

To determine compliance with this annual limit, the owner/operator shall calculate a total by the January 20th of each year using data from the previous 12 months (ending with December 31). Records of consumption shall be kept for all periods when the auxiliary boilers are in operation. Consumption shall be determined by fuel oil totalizer records. The records of consumption shall be kept on a monthly basis. [R307-401]

II.B.1.c The owner/operator shall combust only bituminous, subbituminous coals, and synfuel Covol 298-1, as primary fuels and shall only use diesel oil or natural gas during the startups, shutdowns, maintenance, performance tests, upsets and for flame stabilization in the 9,225 x 10E+6 Btu/hr boilers. Only No. 2 oil shall be used in 166 x 10E+6 Btu/hr boilers. The owner/operator may fuel-blend self-generated used oil with coal at the active coal pile reclaim structure providing that self-generated used oil has not been mixed with hazardous waste. [R307-401]

II.B.1.d The sulfur content of any fuel oil combusted shall not exceed:

- A. 0.85 lb/MMBtu heat input for fuel oil used in the main boilers.
- B. 0.58 percent by weight for fuel oil combusted in the auxiliary boilers.

The sulfur content shall be determined by ASTM Method D-4294-89 or approved equivalent. Certification of fuel oil shall either be by IPSCs own testing or test reports from the fuel oil marketer. [R307-203]

II.B.1.e IPSC shall abide by the latest fugitive dust control plan submitted to the Executive Secretary for control of all dust sources associated with the Intermountain Power Generation site.

Any haul road speeds established in the plan shall be posted. [R307-205]

II.B.1.f The facility shall abide by all applicable requirements of R307-205 for Fugitive Emission and Fugitive Dust sources. [R307-205]

II.B.1.g Dust Collectors

Except for times of start-up, shut-down, or malfunction, differential pressure at the indicated emission points, at all times, shall be within the following limits:

Pollutant/Source PM ₁₀	Differential Pressure Range Across the Dust Collector (Inches of water gage)
(4) Rail car unloading units	0.5 to 12
Transfer building #1	0.5 to 12
Transfer building #2	0.5 to 12
Transfer building #4	0.5 to 12
Crusher building #1	0.5 to 12
Unit one 13A	0.5 to 12
Unit one 13B	0.5 to 12
Unit two 14A	0.5 to 12
Unit two 14B	0.5 to 12
Limestone preparation building	0.5 to 12

If differential pressure is less than 2 inches or greater than 10 inches, work orders will be written to investigate. Dust collector may run in the 0.5 to 2 or 10 to 12 range if reason is known. Intermittent recording of the reading is required on a monthly basis. The instrument shall be calibrated against a primary standard annually. Preventive maintenance shall be done quarterly on each baghouse. [R307-401]

II.B.1.h Auxiliary Boiler

Except for times of start-up, shut-down, or malfunction emissions to the atmosphere at all times from the indicated emission points shall not exceed the following rates and concentrations:

Pollutant	lb/10E+6 Btu heat input	lbs/hr
PM ₁₀	0.10	20
SO ₂	0.69	100
NO _x	0.35	58

Testing shall be done in accordance with the requirements from the most current Title V permit. [R307-401]

II.B.1.h.1 Existing Source Operation: For an existing source/emission point, the production rate during all compliance testing shall be no less than 90% of the maximum production achieved in the previous three (3) years.

Notification: The Executive Secretary shall be notified at least 30 days prior to conducting any required emission testing. A source test protocol shall be submitted to DAQ when the testing notification is submitted to the Executive Secretary.

The source test protocol shall be approved by the Executive Secretary prior to performing the test(s). The source test protocol shall outline the proposed test methodologies, and stack to be tested. A pretest conference shall be held, if directed by the Executive Secretary.

Sample Location: The emission point shall be designed to conform to the requirements of 40 CFR 60, Appendix A, Method 1, or other methods as approved by the Executive Secretary. Access that meets the standards of the Occupational Safety and Health Administration (OSHA) or the Mine Safety and Health Administration (MSHA) shall be provided.

Volumetric Flow Rate: 40 CFR 60, Appendix A, Method 2, 2F, 2G, 2H, or other testing methods approved by the Executive Secretary.

Carbon Monoxide (CO): 40 CFR 60, Appendix A, Method 10, or other testing method approved by the Executive Secretary.

Nitrogen Oxide (NO_x): 40 CFR 60, Appendix A, Method 7, 7A, 7B, 7C, 7D, 7E, or other testing method approved by the Executive Secretary.

PM₁₀: 40 CFR 60, Appendix A, Method 5B, or other testing methods approved by the Executive Secretary. [R307-401]

II.B.2 Unit #1 & Unit #2 Main Boilers

II.B.2.a IPSC shall use synfuel Covol 298-1 as an alternative fuel in the Unit #1 and #2 Main boilers and shall conduct its operations of the Intermountain Generating Station (IGS) coal fired electric steam plant in accordance with the terms and conditions of this AO, which was written pursuant to IPSC's Notice of Intent submitted to the Division of Air Quality (DAQ) on October 21, 2004, and February 22, 2005. [R307-401]

- II.B.2.b The owner/operator shall install, calibrate, maintain, and operate a continuous emissions monitoring system (CEMs) on the main boiler stacks and SO₂ removal scrubber inlets. The owner/operator shall record the output of the system, for measuring the opacity, SO₂, NO_x, and CO₂ emissions. The monitoring system shall comply with all applicable sections of R307-170, UAC; and 40 CFR 60, Appendix B.

All continuous emissions monitoring devices as required in federal regulations and state rules shall be installed and operational prior to placing the affected source in operation.

Except for system breakdown, repairs, calibration checks, and zero and span adjustments required under paragraph (d) 40 CFR 60.13, the owner/operator of an affected source shall continuously operate all required continuous monitoring devices and shall meet minimum frequency of operation requirements as outlined in 40 CFR 60.13 and Section UAC R307-170. [R307-150]

- II.B.2.c Unit #1 & Unit #2 Main Boiler Stack

Except for time of start-up, shut-down, malfunction (NO_x or PM₁₀ only), or emergency conditions (SO₂ only), emissions to the atmosphere at all times from the indicated emission points shall not exceed the following rates and concentrations:

Pollutant	lb/10E+6 Btu heat input
PM ₁₀	0.0184*
SO ₂	0.138 ** (lb/10E+6 Btu heat input based on 30-day rolling average)
NO _x	0.461 ** (lb/10E+6 Btu heat input based on 30-day rolling average)

* Test once a year. The Executive Secretary may require testing at any time.

** Compliance for NO_x and SO₂ emissions shall be demonstrated through use of a continuous emissions monitoring system as outlined in Condition II.B.2.b. [R307-401]

- II.B.2.c.1 Calculations for Test Results: Unit #1 & Unit #2 Boiler Stacks

To determine mass emission rates (lb/hr, etc.) the pollutant concentration as determined by the appropriate methods above shall be multiplied by the volumetric flow rate and any necessary conversion factors determined by the Executive Secretary, to give the results in the specified units of the emission limitation.

Pollutant	lbs/hr (Compliance demonstration)
CO	1320 lb/hr rate (monthly block average)

Combustion flue gas percent O₂ shall be monitored and recorded at least once per 15 minutes at the exit path of each boiler. Measurements are weighted average results collected from several sensors located in each boiler exit flue path. Calibrations shall be maintained within manufacturers recommendations.

Over-Fire Air (OFA) operating condition shall be monitored and recorded at least once per 15 minutes. Monitoring shall include OFA position and status: i.e., No OFA, 1/3 OFA, 2/3 OFA, throttled or open. Operational status is measured by OFA system damper position.

Using the data above and this formula, CO concentration (ppmvd) shall be calculated and averaged hourly, except for periods of calibration, maintenance, or malfunction of the instrumentation or data system. For periods of calibration, maintenance, or malfunction of instrumentation or data collection system, missing data shall be back filled following procedures similar to 40 CFR Part 75 Subpart D, and used for compliance determinations.

$$[C_{ppmvd}] = n * (O_2\%)^a$$

Where:

[C_{ppmvd}] = concentration of CO in parts per million volume dry

n = curve specific factor obtained from the table below

O₂% = percent O₂ measured at the boiler stack exit

a = curve specific exponent obtained from the table below

Values for n and a factors:

	n	a
No. OFA	47259	-7.6817
1/3 OFA	66265	-7.9824
2/3 OFA (Throttled)	4029.2	-4.0112
2/3 OFA (full open)	1372.4	-3.0919

The hourly mass emission rates in lb per hour shall be calculated using the following formula or any necessary conversion factors determined by the Executive Secretary, to give the results in the specified units of the emission limitation.

$$[C_{lb/hr}] = [C_{ppmvd}] * 2.59 * 10E-9 * MW * Fd * 20.9 / (20.9 - O_2\%) * HI$$

Where:

[C_{lb/hr}] = pound per hour emission rate

[C_{ppmvd}] = hourly average of CO emissions in parts per million

2.59*10E-9 = conversion factor for pound per standard cubic feet

MW = molecular weight of CO

Fd = F factor to convert standard cubic feet per million Btu heat input.

O₂% = hourly average of excess combustion oxygen, in percent

HI = heat input, in million Btu per hour

By the 15th day of each month, the monthly average of CO emissions in lb/hr shall be calculated by using the hourly average CO emission values in lb/hr. [R307-401]

II.B.3

Engine Driven Equipment

II.B.3.a

Emergency generators shall be used for routine maintenance and electricity producing operation only during the periods when regular electric power supply is interrupted, except for routine engine maintenance and testing. Records documenting generator usage shall be kept in a log and shall show the date the generator was used, the duration in hours of generator usage, and the reason for each usage. [R307-401]

- II.B.3.b The diesel driven fire pumps shall be operated on an emergency basis only, except for routine engine and fire system maintenance and testing. Records documenting diesel driven fire pump usage shall be kept in a log and shall show the date the diesel driven fire pump was used, the duration in hours of use, and the reason for each usage. [R307-401]

Section III: APPLICABLE FEDERAL REQUIREMENTS

In addition to the requirements of this AO, all applicable provisions of the following federal programs have been found to apply to this installation. This AO in no way releases the owner or operator from any liability for compliance with all other applicable federal, state, and local regulations including UAC R307.

NSPS (Part 60), Da: Elec Util Steam Boiler After 9/18/78

NSPS (Part 60), A: General Provisions

NSPS (Part 60), Y: Coal Preparation Plants

Title IV (Part 72 / Acid Rain), (No subparts)

PERMIT HISTORY

This AO is based on the following documents:

Is Derived From

Supersedes

NOI dated July 15, 2010

DAQE-AN0103270019-09 dated June 15, 2009

ADMINISTRATIVE CODING

The following information is for UDAQ internal classification use only:

Millard County

CDS A

Attainment Area, NSPS (Part 60), Title IV (Part 72 / Acid Rain), Title V (Part 70), Title V (Part 70)

Major source

ACRONYMS

The following lists commonly used acronyms and associated translations as they apply to this document:

40 CFR	Title 40 of the Code of Federal Regulations
AO	Approval Order
BACT	Best Available Control Technology
CAA	Clean Air Act
CAAA	Clean Air Act Amendments
CDS	Classification Data System (used by EPA to classify sources by size/type)
CEM	Continuous emissions monitor
CEMS	Continuous emissions monitoring system
CFR	Code of Federal Regulations
CO	Carbon monoxide
COM	Continuous opacity monitor
DAQ	Division of Air Quality (typically interchangeable with UDAQ)
DAQE	This is a document tracking code for internal UDAQ use
EPA	Environmental Protection Agency
FDCP	Fugitive Dust Control Plan
HAP or HAPs	Hazardous air pollutant(s)
ITA	Intent to Approve
LB/HR	Pounds per hour
MACT	Maximum Achievable Control Technology
MMBTU	Million British Thermal Units
NAA	Nonattainment Area
NAAQS	National Ambient Air Quality Standards
NESHAP	National Emission Standards for Hazardous Air Pollutants
NOI	Notice of Intent
NO _x	Oxides of nitrogen
NSPS	New Source Performance Standard
NSR	New Source Review
PM ₁₀	Particulate matter less than 10 microns in size
PM _{2.5}	Particulate matter less than 2.5 microns in size
PSD	Prevention of Significant Deterioration
PTE	Potential to Emit
R307	Rules Series 307
R307-401	Rules Series 307 - Section 401
SO ₂	Sulfur dioxide
Title IV	Title IV of the Clean Air Act
Title V	Title V of the Clean Air Act
TPY	Tons per year
UAC	Utah Administrative Code
UDAQ	Utah Division of Air Quality (typically interchangeable with DAQ)
VOC	Volatile organic compounds